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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/738,828 12/15/00 GALLUP

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MMC2/1107
AGILENT TECHNOLOGIES
INTELLECTUAL PROPERTY ADMINISTRATION
LEGAL DEPARTMENT, 510U-PD
P.O. BOX 58043
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EXAMINER

VU, Q

ART UNIT	PAPER NUMBER
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2841

DATE MAILED:

11/07/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)
	09/738,828	GALLUP ET AL.
	Examiner	Art Unit
	Quynh-Nhu H. Vu	2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-7 is/are pending in the application.
 - 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 2-7 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claim 1, drawn to a method for attaching a module to a printed circuit board, classified in class 29, subclass 825.
 - II. Claims 2-7, drawn to an electrical attachment, classified in class 174, subclass 260.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the device does not need the step of reflowing the ball grid array.
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Pam Lau Kee on 10/23/01 a provisional election was made without traverse to prosecute the invention of Group II, claims 2-7. Affirmation of this election must be made by applicant in replying to this Office action. Claim 1 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the recited feature "a module having connection pads on a bottom surface; a printed circuit board having connection pads" of claim 2; and the recited feature "a flexible circuit interposing the module and the standoff" of claim 5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

7. Figures 1-2 are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross hatched. The cross hatching should be selected from those shown on page 600-81 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

Specification

8. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not disclose the feature "a module having connection pads on a bottom surface; a printed circuit board having connection pads", as recited in claim 2. Furthermore, applicant discloses the feature "a flexible circuit interposing the module and the standoff", as recited in claim 5. However, applicant does not specifically

disclose how the flexible circuit interposing the module and the standoff; while, the standoff positioned on the bottom surface of the module.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 2-7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Neither the specification nor drawing discloses the limitation "a module having connection pads on a bottom surface; a printed circuit board having connection pads" of claim 2. Furthermore, first, applicant discloses that "a module having connection pads on a bottom surface; a standoff positioned on the bottom surface; a ball grid array interposing the connection pads of the module and the printed circuit board", as recited in claim 2. Last, applicant further discloses that "a flexible circuit interposing the module and the standoff", as recited in claim 5. It is confusing that there is no space for the flexible circuit interposing the module and the standoff.

11. Claims 2-7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recites feature "the height of the ball grid array is comparable to the height of the standoff", as recited in claim 2, ^{is} ~~does~~ not disclose in the specification.

For examining purpose, examiner interprets the word "comparable" same as "related".

In other words, the word "comparable" to mean that they are of the same order of magnitude.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

13. Claims 2-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Ghaem et al.

[US 6,046,910].

Ghaem et al. disclose in Fig. 1 an electrical attachment comprising: a module (20) having connection pads (26) on a bottom surface; a standoff (40) positioned on the bottom surface having a height; a printed circuit board (46) having connection pads (48); a ball grid array (32) interposing the connection pads of the module and the printed circuit board; wherein the height of the ball grid array is comparable (related) to the height of the standoff (see rejection 112, first paragraph above). It is noted that a thickness of the connection pads (26, 48) are exaggerated in Fig. 1. They are supposed to be very thin connection pads.

As to claim 3, the standoff is an insulative material (polymeric).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghaem et al.

Ghaem et al. disclose all claimed subject matter except for an insulative material of silicon. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to using the silicon material for insulative material, since silicon has rubbery properties and reduce stress on BGA connection. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Conclusion

16. Claims 5-7 are not rejected or indicated as allowable over the prior art of record because of these claims are unclear for the reasons set forth in the above rejection.

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Baird et al. [US 5,583,747], Jimarez et al. [US 6,191,952] are disclose a BGA contact with a module and a printed circuit board.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh-Nhu H. Vu whose telephone number is 703-305-0850. The examiner can normally be reached on 7:30-5:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 703-308-3301. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QNV
October 31, 2001


K. CUNEO
PRIMARY EXAMINER